TRAILSIDE FAMILY

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THE NATURE TRAILS AND TRAILSIDE MUSEUM
AT BEAR MOUNTAIN, N. Y.

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SCHOOL SERVICE SERIES NUMBER SEVEN

Department of Public Education
THE AMERICAN MUSEUM OF NATURAL HISTORY
77th Street and Central Park West
New York City

1932

SEEKING

TRAILSIDE FAMILY

Being an account of activities along the Nature Trails and in the Trailside Museum, in the Palisades Interstate Park at Bear Mountain, New York

by

WILLIAM H. CARR

5307(74)

PHOTOGRAPHS BY WILFRED A. MILLER

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32-123273-Feb.1

They followed trails, led on by the song
Of a bird.
Wind in the tree tops made musical sounds;
And they heard.
The brown brook singing along
Undisturbed.
All nature was there, with a peace that abounds,
Unperturbed.

FOREWORD

The Bear Mountain Trailside Museum and Nature Trails were initiated five years ago, in 1927, by the American Association of Museums, through a grant of the Laura Spelman Rockefeller Foundation. The project has since been maintained, jointly, by the Commissioners of the Palisades Interstate Park and the Department of Public Education of the American Museum of Natural History.

During the 1931 season, from May until October, more than 283,000 contacts were made by this out-of-door educational unit. The Park Commissioners, through Major William A. Welch, provided a new cabin to house staff members and, in addition, gave very substantial aid in many directions. Mr. John Tampsen, Miss Ruby M. Jolliffe, and Mr. Raymond Adolph, of the Park Staff, were all very helpful. The Regional Museum Directors of the Park provided many specimens for trailside exhibits and also paved the way for contacts with many camps.

Various departments of the American Museum contributed time and materials to the undertaking. Mr. Herman A. Sievers, of the Department of Public Education, Mr. Howard Cleveland and Mr. John Geary, helped in many ways. Mr. George B. Dill made it possible to build several additions to the Trailside Craftshop. Mr. William G. Hassler, of the Department of Amphibians and Reptiles and Experimental Biology, prepared an excellent account of the amphibians of the Park Region, for future publication. Mr. D. M. Blakely, of the Department of Preparation made a splendid painting of the Trailside Museum, which will also be used in future publications.

Mr. Raymond Torrey continued his support of the work and was responsible for publicity. Dr. Clyde Fisher, of the American Museum, gave of his time and knowledge, as he has since the start of the project. The Zoological Park of St. Louis, Missouri, contributed many reptiles for the new snake display. Dr. Raymond L. Ditmars, of the Bronx Zoological Gardens, in New York City, kindly provided storage and care for specimens over the winter months. A complete list of those associated with the development of the Nature Trails and Trailside Museum this season would fill several pages. To all of these friends we extend sincere thanks.

Dr. George H. Sherwood, Curator-in-Chief,
Department of Public Education,
American Museum of Natural History,
77th Street and Central Park West,
New York City.

IN THE MORNING

The field trail vista was beautiful at any time of day. Many white ash, white oak, maple, witch hazel and staghorn sumach trees lined the path.

THE TRAILSIDE FAMILY

Our Problem is to Quicken the Faculties of Others in the Exercise of Our Own[1]

IF there be any person who wishes surcease from boredom, here is a time-tried recipe for relief. Take two women, two men, two children, five young men, two hundred and fifty living animals, all maintained in a twenty-seven acre area, and add some two hundred thousand visitors. Mix all the ingredients thoroughly but diplomatically with the minimum of expense. Extend the treatment, with very few exceptions, over a period of five months with seven days in each week and about twelve hours in every day. The results will exceed all expectations!

These requirements may seem extreme or overly rigid. If this is the effect given we must seek at once to undeceive you. The treatment, at first sight, appears to be rather strenuous; so it is! It would also seem fraught with possibilities of nervous exhaustion or physical overexertion. Sometimes this is true too! However, the most important outlook, by all odds, has to do with the far happier or thoroughly enjoyable aspect of things. Unpleasant experiences fade to insignificance when contrasted with the joys of inevitable accomplishment that must follow in the footsteps of such an undertaking.

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[1]With Apology to John Drinkwater.

AT THE EDGE OF A BEAVER POND

Trailside Museum staff members led field hikes in the Palisades Interstate Park region. A number of trips were made to study nearby beaver ponds. We were always pleased to observe how many adult nature enthusiasts carried notebooks in which to record incidents of the journeys.

This undertaking is concerned specifically with the operation of the Trailside Museum, the Nature Trails, and the Trailside Craftshop on the banks of the Hudson at Bear Mountain, New York. The background of experience at this location extends over a period of five years, which length of time is neither long nor short! Regardless of this fact, it may be mentioned in passing that a great deal may happen in five years!

Five Years

If one should accidentally discover a wholly satisfactory remedy for the dissipation of ennui, while directing or being in any way connected with such an institution, well and good! But the true objective of Trailside Museums and of Nature Trails, as we see it, has an entirely different significance. It has to do with inculcating in the minds of thousands a greater appreciation and respect for the world out-of-doors. It revolves about the proposition of sharing nature interests and information with as many visitors as possible. Trailside Museums are informal universities of the open air. There are no entrance require-

Ideals

ments. Matriculation is open to all. Through direct educational contact these museums effect cures for maladies of more serious consequences than mere boredom.

History

Previous to our occupancy of the land, a pathless green and brown tangle of trees and vines and unfrequented, bold, rocky surfaces of granite looked down upon the flowing Hudson. Since days of Dutch conquest, since the time when Colonial American and British troops engaged in a furious battle upon the very spot, the twenty-seven acres had encouraged no activity to catch the public eye. Except for a few attempts at farming during years following the Revolution, it is doubtful whether more than a few groups of picnickers had explored the territory.

TWO WAYS TO READ LABELS

Ninety-nine percent of the nature trail labels were placed on an eye level for children. But this little lady wanted to see the picture on one sign that was beyond her range of vision.

Today there are two and a half miles of carefully labeled nature trails, four buildings, including the Trailside Museum, and a working staff of eleven persons. More than 650,000 visitors have traversed the trails since the "first" day in 1927. It was an instance of opening the woodland to the public that the flora, fauna and geology of the region might be intelligently yet simply introduced and known.

New Developments

Improved methods in every branch of activity naturally follow added years of enthusiastic experience. We constantly learn more of what the public want and expect. We also learn what is not wanted. Many preconceived ideas are set aside in favor of new and more practical ones. In reports of other years, we have described the labeling of nature trails and the outline of work in the Trailside Museum.[1] During the year of 1931 there were many new developments, particularly in relation to the Trailside Craftshop, situated at the end of the nature trail system.

Trailside Craftshop

Leaders of nature work and the general public as well like to see actual work in progress. That is why in many ways the Craftshop is rapidly becoming one of the outstanding features of our trail and museum program. Indoors, a small paint shop and carpenter shop enable us to prepare our labels, to make furniture for the museum, and to solve a number of allied problems. Visitors are always welcome in this end of the building. Many are the ideas that have been carried away as a result of patient explanation made by the "carpenter."

In the entrance-way is a miniature museum. Study skins of birds, mounted photographs, local Indian hunting implements, and similar objects are exhibited. Charts and diagrams are used to illustrate various phases of nature trail endeavor, and labels complete the picture. There is no space for this material in the Trailside Museum. Just outside the doorway, a small, cedar-lined stand, or open display room, is used to show specimens of nature-lore handicraft. Here are plaster casts of leaves and animal tracks, samples of nature trail labels, and other things of a like character.

Increasing groups of visitors from widely separated sections of the country are interested in the mechanics of our work. They come to the Craftshop with innumerable questions and with recording notebooks in hand. We have been only too glad to aid in furthering the expansion of

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[1]1927—Signs Along the Trail. 1928—Blazing Nature's Trail. 1929—Trailside Conversations; 1930—Trailside Actions and Reactions.

See also page 33 for additional, general bibliography.

out-of-door museums, and have had the privilege of outlining the work for many new projects of the kind.

Stone Wall

Years ago someone conceived the plan of erecting a large stone wall, probably as a support for the end of a barn. For several seasons we bore no friendly feeling toward that architect, whoever he might have been. Stones had fallen to the ground at the Craftshop's entrance. Poison ivy in rich profusion had claimed the ragged wall for its own. The thing was an eyesore. This year, however, we decided to put the structure to some use, and when our work was completed, had cause to thank rather than to berate the barn builder. The wall was decidedly useful after all!

A real satisfaction accompanies the moving of heavy rocks by means of sheer physical effort, the digging of post holes, the felling of trees and splitting them into serviceable timbers, and the putting together of raw materials, working constantly with a definite end in view. Of course there is such a thing as over-doing satisfaction of this kind! Any farmer could inform you as to this fact! We could have told you the same thing,

BOTANY POOL

This new trailside feature enabled us to exhibit water plants in an easily accessible spot. In addition to plants there were several kinds of fish, and one large bullfrog. In the background are snake display cages.

TURTLES IN THE SUN

Overhanging rocks, carefully placed and cemented, proved an insurmountable barrier to adventurous turtles bent on escape from our new turtle pond. The use of unsightly wire to confine turtles in a pond of this type is not necessary. Both turtles and visitors liked the arrangement.

especially two days after the time we had started work on the barn wall, or when we built our botany pool in July when the thermometer registered ninety degrees, and above, in the humid shade.

We have always wanted some means of presenting common water and semi-water plants in a way to enable the public to see and benefit.

Botany Pool

Our thought in building the botany pool was to care for these plants in an easily accessible spot where labels could be used to good purpose. Construction of the pool involved moving stones and boulders weighing from ten to three hundred pounds each. A section of the stone wall provided a goodly share of these stones. A crowbar, a shovel, a pickaxe, and considerable brawn were the implements used. After a week or so of tugging, lifting, and hauling, the assembled rocks formed an oval pool twenty feet long and ten feet wide at the center. Hand-mixed cement filled crevices and restrained the water. In order that the cement might harden properly and in good season, we often worked until long after dark with the aid of an

electric bulb on an extension cord. Finally, water lilies, swamp milkweed, pickerel weed, and many other plants were placed in the pool and on the ground surrounding it; and they lived! The pool did not leak—much! Labels, some nailed to water floats, told the stories of identification and of general interest. Soon, fish accepted the pool and swam about, much to the delight of children. An old grandfather bullfrog refused to leave the scene and readily fed upon grasshoppers and worms. Visitors paused, read the signs, exclaimed, "Oh! So that's what they call 'Pickerel Weed'!"; or, "See the great big frog! Isn't he just too enormous!" The pool was a success.

Turtles and Pools

Three large turtle pens were constructed nearby. Once more the old barn foundation came into service as a background and retaining wall. Flat stones, laid to overlap, obviated the use of wire or lumber to restrain the turtles in their respective pools. Labels with colored paintings of each turtle on exhibit made it practically impossible for English-reading people, gifted with vision, to mistake the species. A land turtle pool, with three-quarters

FERNERY

Fourteen species of ferns were labeled in this spot beside the turtle pools. Although ferns were described in various other sections along the trails, we found it valuable to transplant certain common kinds and concentrate them in one small area.

A TURTLE TALK

Turtles were often used as demonstration material for nature lectures. Here a group of councillors, from a park camping center, is examining a specimen.

dry land, confined the box and wood tortoises. A water pool was host to painted, spotted and musk turtles, and a large snapping turtle lived in solitary dignity in a deep pool of his own. Many transplanted ferns filled earthy spaces between the pens. Some fourteen kinds were identified with signs.

Shortly after the various pools were completed, we realized that there was a real advantage in grouping exhibits of this sort. Formerly, they had been scattered along the nature trails where it was difficult to care for the various animals. With the new arrangement, they could all be seen by a person standing in one spot. A guide, or group leader, could direct his followers to the Craftshop and lecture to them without having to hunt about for specimens. There were enough other things to be sought along the trails in any event! At least two-thirds of all our displays were distributed along the nature trails. One half of these were botanical exhibits. The improved system was better for the fish and turtles, too! We could easily supervise adventurous youngsters who were

Animal Concentration not Zoo

tempted to annoy the creatures. Elsewhere, the captive animals were at the public's mercy.

In the general scheme of our new Craftshop arrangement, we have been careful not to give the appearance of a "zoo." Instead, we have tried to design a spot where various animals could be observed in an environment similar to their native habitat. We simply concentrated objects with a double end in view. Both public and animals were served and the trails were improved thereby.

The turtle pools proved to be so useful as teaching vehicles that we decided to add a miniature "snake house" to the growing Craftshop collection. Fourteen species of local snakes were shown in their individual, white-surfaced, glass-fronted cages of rustic appearance—rustic as much from necessity as design! As usual, the snakes were good drawing cards. Though many people profess a keen dislike for serpents, they will walk miles to see them! A comment, often overheard, was:

Snakes and People

"Where are the terrible snakes! I want to look at them!"

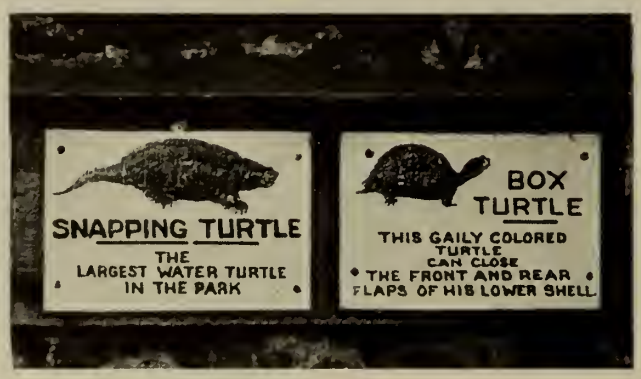
TURTLES ARRIVING

Many of our animals were presented by children who were very happy to assist in this way. In fact, our ability to exhibit various salamanders, fish, frogs and snakes was, in a large measure, dependent upon child collectors.

You see, we learned something by building a snake house and some turtle pools. Along with other people, we have found that there is such a thing as the natural history of human behavior. Not only did our contraptions aid us in a study of animal traits, but in human actions as well. A study of the characteristics of two-legged citizens has led us into many new channels, all useful, and in certain instances of paramount importance to our work. This applies not only to visitors, but to our own staff as well.

Harmony in Work

We have often observed, for instance, that community effort in combined physical and mental endeavor tends to promote harmony and cement friendship among the workers. Too much physical labor alone, or too much mental activity without any physical combination or relief soon lead to unpleasant discord among those closely associated. There is a resulting lack of

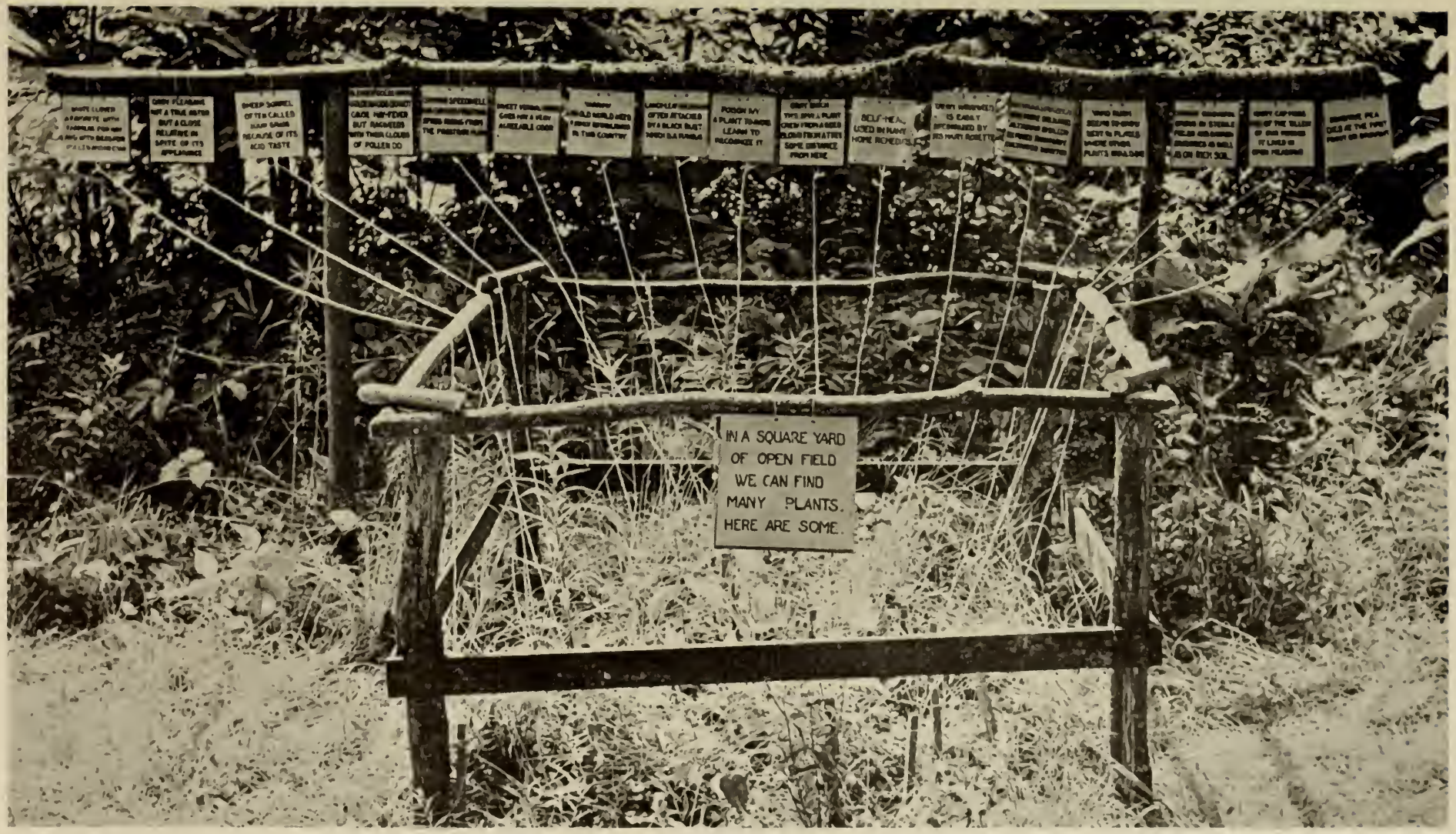


ILLUSTRATED LABELS

Colored drawings of animals on exhibit were a valuable aid to identification when more than one species was present in a single enclosure. These signs were lettered and drawn on a white-enameled, zinc background. An overhanging strip of tin served as a roof to prevent rain from attacking label surfaces.

balance which is reflected throughout every relationship. Physical and mental programs for any sort of employment should be well rounded if happiness and satisfactory results are to be gained. Particularly is this true when persons not only work, but live together as well, day in and day out. Nature Trails offer splendid occasion for a balanced program of this sort.

At the Trailside Museum it is not a case of "from nine to five with an hour out for lunch." As we live very closely together care must be taken to see that the resulting "family affair" condition does not eventu-



"IN A SQUARE YARD OF OPEN FIELD WE CAN FIND MANY PLANTS"

Visitors were surprised to learn that seventeen or more kinds of plants could be discovered in a small area. Strings, from each suspended label led to pegs beside the plant described.

BEAR MOUNTAIN
BEAR MOUNTAIN INN
HESSIAN LAKE
NEW YORK
ZOO
NATURE TRAIL ENTRANCE
SWIMMING POOL
BATH HOUSE
LADY'S SLIPPER
CHESTNUT OAK
PITCH PINE
INTRODUCTORY TRAIL
TRAIL
FERN POND
FROG POND
TRAILSIDE
BEAR MT. R.R. STATION
WEST SHORE RAILROAD
HUDSON RIVER BOAT DOCKS
Trailside Museum
Nature Trails, Craftsh
MAINTAINED BY THE AMERICAN MUSEUM OF NATURAL
COMMISSIONERS OF THE PALISADES INTERSTATE PARK,

HAVERSTRAW
TUXEDO
WEST POINT
FORT CLINTON
HEMLOCK
WHITE PINE
RETURN TRAIL
TULIP TREE
SERVICE ROAD
STAGHORN SUMAC
GRAPE ARBOR
ANT HILL
HIDDEN LABEL TRAIL
WHITE ASH
WHITE OAK
FISH POND
CRAFTSHOP CABIN
TURTLE POOLS
VIRGINIA CREEPER
LAND TURTLE PEN
FERNERY
SNAKE HOUSE
PEEKSKILL
TRAILSIDE MUSEUM
ROAD SIGN
TOLL HOUSE
BOTANY POOL
ACORN TRAIL
TRAILSIDE CRAFTSHOP
TRAILSIDE ZOO
RED OAK
HISTORICAL TRAIL
MUSEUM CABIN
HISTORICAL POINT
BEAR MOUNTAIN BRIDGE
Zoo
RY AND THE
MOUNTAIN, N.Y.

ACQUAINTANCE WITH STAGHORN SUMACH

A group from that fascinating institution, the Brooklyn Children's Museum, visited the nature trails with their leader. The boys and girls showed, by many of their reactions to labels and exhibits, evidences of previous sound instruction in nature lore.

ate in any detriment to the museum or trail operation. Perhaps it is a lack of actual blood relationship that makes the task easier! Nevertheless, when eleven people, with ages varying from nine to forty years, are closely associated in one spot, difficulties may very easily arise. One excellent preventive is that of giving everyone a decided "say" in all that goes on. Everyone has a definite part in decisions relating to new projects and to matters of general policy as well. It is perfectly obvious that some one person must be the judge of work performed; but that is no reason why others should not solve problems as they see them.

Composing Labels

From those of our visitors who come to see our trails and museum with a view toward going elsewhere and building similarly, we often hear this query:

"How does one go about writing labels, both for nature trails and for out-of-door museums?"

This request may be freely translated as saying:

"How does one know what to say on labels that will interest the average visitor?"

This question is not simply or speedily answered. It has many ramifications, all of fundamental value in the work at hand. We are still learning how to write labels. The most useful aid to this end has been our experience with the afore-mentioned "average visitor." Many of our signs have been reworded, time and time again, in an effort toward improvement.

In the first place, labels should be concise and never long-winded. The writer should choose the high spot of interest and write and rewrite until his thought is condensed into about twenty-five words. Museum or trail labels should bear scant relationship to congressional records!

NOTEBOOK IN HAND

Visitors from widely separated sections of the country, studied different methods of nature exposition. Many came to us with the expressed intention of developing similar projects at home. Numerous contacts, mutually beneficial, resulted from visits of this kind.

BOTANY POOL EXHIBIT

The swamp milkweed, while in flower, was successfully transplanted to the botany pool near the Trailside Craftshop where several labels were used to describe it.

If the story is too long for one label, then make two, or a dozen signs! Individual short tags will be read, where long ones will only hide the landscape. Remember now, we are speaking of the "average visitor!"

In composing brief, to-the-point captions, bear in mind that the subject matter must follow some general scheme. As a rule, the principal object is to disseminate information in a way pleasing to the scribe himself.

Unfortunately, or fortunately as the case may be, this idea does not always meet with public approval. Let us suppose that the label writer has a consuming interest in mammalogy. The danger here would be that the subject of mammals from a more or less strictly scientific standpoint would be over-emphasized. The woodchuck, for example, might appear only as a symbol of its particular family and as a representative of its species, and not as a living animal where labels were concerned. We do not wish by any means to imply that good mammalogists see only the scientific side of animals; far from it! Nevertheless, this inherent enthusiasm might easily lead one to err in what he has to say upon the sign over the woodchuck cage. His label might read,

THE WOODCHUCK

A common rodent of the fields—hibernates in Winter. Lives on plant food and inhabits self-made burrows.

This label, including the title, contains exactly twenty words. It tells quite a variety of facts in a short space. There is not the slightest complaint on the score of length, but oh, what a failure it would be with nine out of ten persons who would read it!

How many "average visitors" know what a "rodent" is; what "hibernation" means, or what a "self-made burrow" would look like?

If you think that "nearly everyone would know," then you would be grievously mistaken. We are not underestimating the intelligence of our sightseers. You might say, "Well! but they ought to know these things!" But they *do not know!* How then to teach?

We would suggest not one, but at least four labels; one key sign, and three auxiliary ones. We would recall something of our appreciation of the woodchuck's many abilities and of our admiration for the way in which we regard the animal as a "personality." Although we lay no claim to being past masters of the delicate art of label writing, the result would be the following series of labels:

THE WOODCHUCK

A courageous inhabitant of fields and pasture lands, living in country districts in the face of its principal enemies—gun, man and dog.

BOTANY POOL CORNER

Pulpit labels were needed to identify and describe some twenty species of water plants in the botany pool.

A RODENT

The plant-loving woodchuck is related to rabbits, squirrels and mice. It has two gnawing, or rodent, teeth in front of upper and lower jaw.

(NOTE—a drawing of the woodchuck's skull would be an aid here.)

WINTER SLEEP

The woodchuck sleeps, or hibernates, during cold months. It curls up in a furry ball and lets the snow fall unheeded.

THE HOME

Woodchucks dig or burrow in the earth, forming passageways and nest spaces. The burrows spell safety in time of danger.

Of course more could be said about the woodchuck, but here, at least, are four "high spots." We often place labels and then listen to what people say about them. We ask for the opinion of others, for suggestions leading to better wording. In this way we learn as we go. It is no hit-or-miss task, but one that requires careful thought and painstaking method.

John Drinkwater, in *The Muse In Council*, writes that," . . . the world is seldom good at reducing its emotion to reason, particularly when that reason has to come out at the end of a pen." Yes, this statement is certainly applicable to label writers. After all, expression of emotion and imagination must accompany facts if signs are to be read. The ability to judge or to decide upon the thin line that joins a reasonable combination of fact and color is a problem only to be solved by personal experience or by benefit of the experiences of others.

Animal Habit Index

Each year our "trailside family" includes, not only the persons engaged, but many large and small living animals as well. These wild members of the family are of utmost importance. Aside from botanical and geological exhibits, they are of foremost interest to our visitors. We watch over them carefully and anxiously, for our ability to attract the great majority of our guests depends upon this display and its well-being. The collection includes bullfrogs and salamanders, fish and birds, snakes and lizards, and numbers of insects, nearly three hundred creatures in all.

In other years we have spoken a bit casually about our animal population. We have briefly discussed such kindred subjects as cages and care. Our study of the many phases of this work has developed some interesting by-products. A very helpful method of filing information for future reference is embodied in a prosaic card index. Each year some of our co-workers have had the highly desirable predilection for acting as secretary to various animals, recording details of feeding and accounts of habits.

It is surprising how easily one forgets what to feed widely different types of animals from one year to the next. We have found that the earthworm is almost a universal food for fish, turtles, amphibians, and many other creatures. But there are other foods as well. There are different kinds of feeding habits to remember, also. When we have learned what one animal will eat, we enter the data on a card; but this is not all. There are more things to be noted. Here is a typical "animal habit" card from our files:—

A FAVORITE FISH

The ease with which the pickerel navigated and the beauty of his slim, colorful, graceful body, made him the most popular fish in our tanks. We found that a diet of minnows and angle worms, would satisfy the pickerel for months.

LIVING INSECTS

A magnifying glass, contained in a sliding frame, could be moved along a track and the lens brought to bear upon different insect cages. The cages had white interiors to reflect light from a skylight above.

NAME—Banded Pickerel (seven inches long).

CAUGHT—Queensboro Lake, May 3, 1930. Caught in hand net. Released in museum pond October 1, 1930.

FOOD—Tadpoles, dace, earthworms, young pickerel. Average four dace daily, dependent on size. Smaller individuals will live long on diet of earthworms only.

HABITS—Lives well in three gallon tank with green plants and pebbled bottom. Have kept many for three months or more (1931). Seems to lose fear. Will feed from hand while water is being changed or while persons stand nearby. Has a sad tendency to leap out of tank onto floor. Must have cover over aquarium. Very attractive to visitors because of beauty of form, color, and motion.

Here is a turtle card.

NAME—Musk Turtle, *Sternotherus odoratus.*

CAUGHT—Hessian Lake. Occurs in nearly all park lakes. Often observed on lake bottom a few feet from shore. Numbers caught in hands or in hand net.

FOOD—Insects, worms, raw beef, meat-loaf and bread.

HABITS—Small specimens, about the size of a twenty-five cent piece, live well in museum cage with water pan. Larger individual about four inches

long should be kept in out-of-door enclosure with plenty of water for swimming purposes. They are surprisingly active climbers and will escape where other turtles cannot; attempt to bite when given opportunity. Not so handsome or satisfactory to exhibit as spotted or painted turtles.

Snake cards are very well worth keeping. Although we have approximately the same species each season, we nevertheless make new cards to contain new observations. This is one:—

NAME—Timber or Banded Rattlesnake—*Crotalus horridus*.
CAUGHT—Long Mountain. Not uncommon in Park but never known to injure, except when being caught or after being in captivity. Have kept numbers from 1920 to 1931.

KATYDID LOOKING AT YOU!

Through the magnifying glass, this insect presented rather a startling appearance. Katydids fed well and lived long in captivity but resented handling, as might be expected, and protested with shrill pipings.

"JIM"

The craftshop tame crow was an important member of our Trailside Family. He never failed to return, in full measure, the interest shown in him by visitors.

FOOD—(Warm-blooded), mice, rats, chipmunks, many individuals will not feed at all.

CAGE—Must be absolutely fool-proof. We use one with two separate sheets of plate glass in front and double sections of fine wire mesh on top and back, one inch space between mesh sections, side and bottom solid.

HANDLING—Never picked up by hand as in former years. Noose stick used by only one person. Cage locked otherwise. Snake always removed and placed in bag when water is changed or cage cleaned.

HABITS—1929—Would not eat; would kill prey and leave it untouched. Color a

INSECT HOUSE

This simple cage, especially designed for the frontal use of a large magnifying lens, had a white interior sliding glass in front and rear, and a glass cover. Air circulation spaces were provided at each end. These cages were cleaned three or four times a week. Food was changed daily.

light yellow. Disposition not aggressive. 1930—specimen had seven healthy young born alive on September 13th. Dark and very much disposed to strike three months after capture. Would rattle when cage was approached by visitors. 1931—Had four. Museum specimen dark and very aggressive. Would strike upward for a distance of twenty inches. Shed skin August first. Ate mouse and chipmunk.

If we were to give you our complete notes on the Rattler, we should have to fill an entire pamphlet. The above card is but an abstract. Often one has to use a notebook when his information becomes too lengthy to be contained on an index card. After ten years many notebooks will be filled and will be prized by their owners, used by others, and in general be of considerable worth. What a vast amount one loses by not keeping accounts of his observations. We would not trade our records of nature happenings indoors and out, for anything. Make your own "nature library" as you progress with your work.

We are tempted to tell you here about our 1931 tame crow, but on reflection, realize that, like the Timber Rattler, we should do him an injustice by confining his story to a brief sketch. Each year we have a crow and each year we think our pet better than the one preceding. Our

SOMETHING TO "SAY"

The crow is earnestly discussing the food question. He was always excited about a meal in the offing and would make friends with any who issued invitation to dinner.

MOUSE CAGE

Holes, in the painted tree trunk, led directly to nesting chambers constructed in the rear of the habitat background. Visitors appreciated the artificial woodland glimpse regardless of what the whitefooted mice thought of the scheme.

notes on the crow, if placed end to end, would reach a very long way indeed! If you have no other bird, by all means keep a tame crow. Crows are at once great nuisances and great attractions. How we miss ours when winter comes and we are no longer able to have him about!

Day after day, as we observe the turtles, the fish, and all the other creatures, we come to know more and more of their habits. Familiarity in this instance breeds anything but contempt. How well we recall the hours spent before the pickerel tank, watching the quick, accurate motions of the fish as it pursued minnows. Even at comparative rest the pickerel is interesting. There is always a fluttering fin or a gently waving tail. The pickerel is as nervous as a high-strung race horse! Like deployed, miniature dirigibles, they rest in mid-tank, ever awake and ever vigilant. We are always pleased when visitors notice the same things we do. It makes a bond between us and establishes an easy footing for further conversation.

In previous seasons, particularly the first two, the animals on the whole received better care than the humans who looked after them. This statement is not far-fetched either, for the captive creatures at least had permanent living quarters and sufficient food, regularly. Then the Palisades Park Commissioners, through the general manager, Major William A. Welch, erected a cabin for the convenience of those who worked upon the trails and in the museum. During the past year, another cabin was built. We are all greatly apprecia-

New Cabin

tive of this effort. For the first time, we were enabled to house our staff properly. Formerly, the boys and men slept in any available space-cubby-holes in the Craftshop. In some cases, the beds had to be removed in the day to provide working quarters. These semi-hardships are not at all difficult to countenance over short periods of time; but after several months of living in this way, it becomes very unpleasant indeed. As might be expected, the work suffers, too.

We have learned that three square meals a day, at regular hours, and good sleeping and recreation quarters will work marvels in the morale of nature trail employees. There is nothing more distressing than bickerings over food; and there will be bickering when the food in question is bad! Therefore, we would say to any who are contemplating the operation of a nature trail system, take care of your men first. Provide for their comfort and then look for results.

AQUARIUM WITH HABITAT BACKGROUND

An attempt was made here to present a cross section of local pond bottom to increase the teaching value of a live fish exhibit. The painting was glued to a removable board held in place by turn screws on the outside rear glass.

FISH TANKS

Benches, placed beside this table, enabled visitors to rest while examining the pickerel, sun fish and carp.

Our new cabin is a splendid one. It solved nearly all of our difficulties with workers. How we ever existed without it is a puzzle. If anyone knows how to build attractive, comfortable, useful and absolutely satisfactory cabins, it is Major Welch. To him, once more, we extend our sincere thanks.

Advantage of Discomfort

Discipline enforced by hardship is excellent for one's character. Lessons in economy, necessitated by lack of monies, teach one to use materials to the limit of their worth and to regard waste of any sort as unthinkable. We have advanced projects in the face of all manner of opposition. The entire experience has been good for us. There is a limit to one's endurance though; and now that things are being made more convenient, we breathe deeply, and look forward to new worlds to conquer. It seems that the ordinary tendency is to forget, or at least neglect mentioning the not-too-pleasant side of things when recounting a story of advancing activity. Our reason for touching upon the darker, as well as the lighter side of affairs is not in any sense inspired by an unhealthy spirit of complaint. We have simply endeavored to paint, or sketch,

some groundwork and shading in an effort to complete a picture which would otherwise appear as a silhouette or at best a vignette. We have included the foundation with the general framework.

Thoughts on Looking Forward and Backward

Our museum is small, our trails at first sight do not seem to involve a great deal of effort, and our craftshop, by its very simplicity, appears to be firmly and easily established. Yet the foundations of our work are as large as all Nature and as tiny as the least of insects. We are concerned very intimately with things of the earth and with people who would know more of the same earth. Nor is our effort suffused only with "the dull leaden mask of mere intellectual curiosity" of which William H. Hudson speaks so disparagingly in his "Green Mansions." Rather does it embrace human elements of understanding and of comradeship in the open. We have the very highest regard for all that Science has to reveal. A constant striving for the presentation of

CAGE BUILDING

The Trailside Craftshop continued to be a meeting place for campers who wished to make cages and other equipment for their own museums. As in former years, we provided tools and materials for this purpose, free of charge. Nearly all lumber for this and numerous other uses, was furnished by the carpenter shop of the American Museum of Natural History. This was an important item.

"STUDYING NATURE NOT BOOKS"

A class in field geology; from Columbia University studying their subject at Geology Point where source material was readily available. Added numbers of groups from universities, colleges and normal schools, visit us each year.

absolute truth is eminently present in all we set forth. But interwoven in this honest fabric of facts are immutable strands of sympathy and respect for the unexpressed but undeniable wishes of our audience. These wishes have to do with a thirst for the dramatic, and with a subtle request for the appealing side of nature exposition, neither of which desires may be satisfied with facts alone.

There is a certain pleasure in knowing that our total number of visitors is great and far overtaxes our physical equipment, but this is beside the question. The magnitude of the work itself far supersedes every other consideration. Our opportunities are enormous and endless in prospect. Never in a hundred life-times could we take advantage of them all. Often, when looking upon what we have accomplished, we are overwhelmed with a sense of frustration, with a feeling that we have barely commenced our labors. We become overly introspective, too much concerned with the present, and are tempted to regard as futile much that has gone before. Then there comes to us the saving thought, "Yes, but you will never be able to estimate the joy you have given to others, even in the little you have done!" And so it is. At once the future holds greater promise and we turn to our duties with lighter hearts.

NOTE: For reference material, see:

"*Nature Trails*" by Dr. Frank E. Lutz, American Museum of Natural History, New York, 1926. (36 pages with illustrations). (This is an account of the initial operation of Nature Trails in the confines of the Palisades Interstate Park.)

"*Nature Trails in Cleveland*" by Edmund Cooke. American Association of Museums, Washington, D. C., 1930. (18 pages.)

The Bear Mountain Nature Trail pamphlets, mentioned on page 8 may be secured at the American Museum of Natural History, New York City. (Average number of pages each, 30, with illustrations.

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